

leg. Museo Caffi BG 2♀; Urbe m 600, torrente Orba c/o Vara Inferiore 27.V.2001 leg. Museo Caffi BG 22♂ 4♀.  
Specie nuova per l'Italia, segnalata in Europa Centrale.

*Conosorophylax* sp. Cfr. *piemontanus* BOTOSANEANU, 1967

Liguria: Provincia di Imperia: Mendatica m 1300, rio delle Salse 10.X.2001 leg Museo Caffi BG 1♂.

L'esemplare campionato risulta simile alla specie indicata in letteratura, della quale è noto solo l'esemplare tipico, raccolto in provincia di Torino nel 1935 da Navas.

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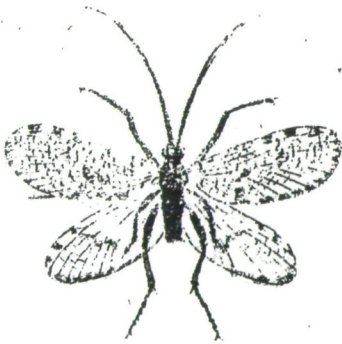
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#### PHRYGANEA reticulata.

##### Die netzflieglichte Frühlingsfliege.

*Phryganea reticulata*: nigra alis subferrugineis reticulatis. Fabric. Entom. syst. T. III. n. 1. p. 75. Syst. Ent. n. 1. p. 306. Spec. Ins. T. I. n. 1. p. 388. Mant. Ins. T. I. n. 1. p. 245.

*Phryganea reticulata*, Linn. Syst. Nat. n. 4. p. 908, ed. XIII. n. 4. p. 2632. Fn. Suec. n. 1482.

Habitat primo vere in plantis aquaticis: legi saepius in *Caltha palustri* L.

BRAUERIA (Lunz am See, Austria) 31: 26-28

#### New data on the caddisflies (Trichoptera) of south-western Siberia

M.A. BEKETOV and V.D. IVANOV

**Abstract.** Caddisflies were studied in the south-east corner of the Great Siberian Plain between 54°- 56° N. and 81°- 84° E (Novosibirsk Province). The present list includes 38 spp. belonging to 10 families. The region presents the easternmost records of *Setodes viridis* and westernmost records of *Rhyacophila angulata*, *Ceratopsyche kozhantshikovi*, *Ceratopsyche valvata*, *Psychomyia minima*, *Hydatophylax grammicus*, *Gumaga orientalis*, *Molanna moesta*, *Ceraclea lobulata*, *Oecetis brachyura*, and *Mystacides dentatus*. The studied area is a borderland for both the East- and West- Palearctic species.

**Introduction.** Large areas of Western Siberia are poorly studied. A few publications by MARTYNOV (1910; 1914; 1929) describe the Trichoptera either of Altai Mountains on the south-east of this area, or of the lower course of the Ob' River on the north-west. As reviewed by LEPNEVA (1930), the total amount of species reported for the entire Ob' river basin is equal to 101; this number covers probably less than a half of the species to be expected there. More recent publications (LEPNEVA, 1964, 1966; SPURIS, 1989; IVANOV et al., 1997; IVANOV et al., 2001) summarize the data on the geographic distribution of caddisflies in West Siberia. A paper by BORISOVA (1985) describes different samples from Altai Mountains collected in or nearby the Altai Nature Reserve and provides a literature overview for the related publications.

The samples of Trichoptera described in the present publication were collected in the area between 54°- 56° N and 81°- 84° E. The studied territory is in Novosibirsk Province and belongs mostly to the Ob' river basin. This area is a piedmont of the Altai Mountains; geographically it is treated as a part of the West Siberian plain. Some rivers are tributaries of isolated lakes. Adults and larvae were collected during 2002 and 2003 by M. Beketov in the rivers Ob', Inya, Berd', Tula, Shipunikha, Ik, Izdrevaya, Nosikha and Mosikha; also in Lake Chany and in several small stagnant water bodies. The Trichoptera collection of the Siberian Zoological Museum (Novosibirsk; samples by Dr V.V. Dubatolov) was also studied. The plain piedmont territory considered here is bordered by the Altai-Sayan mountain system in the East and by the West Siberian Lowland in the West.

The present paper is part of the series of publications focused on the faunistic investigation of aquatic insects in the Novosibirsk Province and the adjacent areas. A part considering mayflies (Ephemeroptera) was already published (BEKETOV & KLUGE, 2003).

#### Species list

##### Rhyacophilidae

*Rhyacophila angulata* MARTYNOV, 1910. A single male adult found near the Shipunikha rivulet, 6-VIII-2003. As far as we know, this species was not previously recorded for western Siberia. This species had been listed for the Altai Mountains but was not recorded previously from the West Siberian plains. East Palearctic distribution of this species includes south Siberia, Korea, Mongolia and the Far East of Russia.

##### Hydropsychidae

*Aethaloptera evanescens* (MACLACHLAN, 1880). Numerous male adults, on Ob' river near Novosibirsk city (I-VII-2002; VII-2003). East Palearctic: Siberia including upper Ob' basin and the Far East of Russia.

*Macrostemum radiatum* (MACLACHLAN, 1872). More than a hundred of specimens were collected near Ob', Inya and Berd' rivers (VI-VII-2002-2003). East Palearctic: southern Siberia including upper Ob' basin and the Far East of Russia.

*Ceratopsyche kozhantshikovi* (MARTYNOV, 1924). The westernmost locality was found on Inya river where numerous adults

- were collected (V-2002; V-VI-2003). East Palaearctic: southern Siberia including upper Ob' basin and the Russian Far East.
- Ceratopsyche valvata* MARTYNOV, 1927. The westernmost locality was found on Inya river where many males were collected (VII-VIII-2002; VII-VIII-2003). East Palaearctic: Altai, Pribaikalie, Mongolia and the Russian Far East. First record for the plains of the West Siberia.
- Hydropsyche angustipennis* CURTIS, 1834. Five males, Berd' river 25-VI-2002. Palaearctic; known previously from Europe, Caucasus, and the Far East of Russia. First record for Siberia.
- Hydropsyche bulgaromanorum* MALICKY, 1977. Hundreds of adults were collected at Ob' river near Novosibirsk city (10-VII-2002; VII-2003). Palaearctic.
- Hydropsyche contubernalis* MACLACHLAN, 1865. Three male and one female, Ob' river near Novosibirsk city (10-VII-2002). Palaearctic.
- Hydropsyche pellucidula* CURTIS, 1834. All Siberian findings known so far (including the present record – Inya river, Novosibirsk city, 23-VIII-2002; 20-IX-2002) are based only on larvae. The close affinity to *H. incognita* PITSCH and absence of adults make this determination rather dubious. Europe, Caucasus.
- Potamyia czekanowskii* (MARTYNOV, 1910). Numerous adults were found on Ob', Inya and Berd' rivers (VII-2002-2003). East Palaearctic: Siberia, Mongolia and the Far East.
- Polycentropodidae**
- Polycentropus flavomaculatus* PICTET, 1834. One larva, Inya river, Novosibirsk city, 20-IX-2002; numerous adults: near Inya river in outskirts of Novosibirsk, 31-V-2003. Palaearctic. Previously known from Europe, South-East Siberia, and north of the Far East of Russia; first record for South-West Siberia.
- Cyrnus flavidus* MACLACHLAN, 1864. Two larvae: Berd' river near Shipunovo village, 2-VIII-2002. Possibly a Palaearctic species: Europe and south Siberia; the easternmost findings in Pribaikalie.
- Neureclipsis bimaculata* (LINNAEUS, 1758). A male, near Ob' river in Novosibirsk city, 24-VIII-2003. Holarctic species.
- Psychomyiidae**
- Psychomyia minima* (MARTYNOV, 1910). Westernmost locality on Ob' river in Novosibirsk city (one male and seven female adults, 15-VIII-2003). East Palaearctic species: Altai, eastern Siberia and the Russian Far East. First record for the plains of the West Siberia.
- Phryganeidae**
- Agrypnia crassicornis* (MACLACHLAN, 1876). A male, Chany lake near Kvashnino village, 29-VII-2003. Possibly a Palaearctic species; not known from the Far East. Lives in brackish waters.
- Phryganea bipunctata* RETZIUS, 1783. A male, near Zyryanka rivulet, Novosibirsk city, 18-VI-1996; deposited in the Siberian Zoological Museum. Palaearctic.
- Phryganea grandis* LINNAEUS, 1758. Numerous larvae, Inya and Berd' rivers IX-2002 and VIII-IX-2003. Palaearctic species, with some subspecies; *Ph. grandis rotundata* Ulmer, 1905 in Siberia.
- Oligotricha lapponica* (HAGEN, 1864). A male, at Zyryanka rivulet, Novosibirsk city, 9-VI-1988; deposited in the Siberian Zoological Museum. Holarctic.
- Semblis atrata* (GMELIN, 1790). A male near Shadriha rivulet, outskirts of Novosibirsk city, 22-VII-1996; deposited in the Siberian Zoological Museum. Palaearctic.
- Semblis phalaenoides* (LINNAEUS, 1758). A male, Toguchinskii district, 12-VI-1995, deposited in the Siberian Zoological Museum. Palaearctic.
- Brachycentridae**
- Brachycentrus subnubilus* CURTIS, 1834. Three males, Inya river, Novosibirsk city, 30-V-2002; 9 males, on Ob' river in Novosibirsk city, V-2003. Palaearctic species.
- Limnephilidae**
- Anabolia furcata* BRAUER, 1857. A male: Mosiha rivulet, near railway station "38 km", 15-VIII-2003. Possibly a "wide West Palaearctic" species: Europe, western Siberia, Altai, south Siberia to Sayany Mts. (Pribaikalie).
- Limnephilus flavicornis* (FABRICIUS, 1787). A female, Inya river near Otgonka railway station, 10-VIII-2003. Distribution as in *A. furcata*: Europe and south Siberia.
- Limnephilus major* (MARTYNOV, 1909). A male near Zyryanka rivulet, Novosibirsk city, 3-VII-1988; deposited in the Siberian Zoological Museum. Palaearctic, very rare in Europe and Caucasus, rather common in Siberia.
- Limnephilus rhombicus* (LINNAEUS, 1758). A female, Berd' river near Novososedovo village, 22-VI-2002. Holarctic.
- Hydatophylax grammicus* (MACLACHLAN, 1880). The westernmost locality at Mosikha rivulet where two males were collected (31-V-2003). East Palaearctic, occurs also in ultimate north eastern parts of Europe; Siberia and the Far East.
- Halesus* sp. Collected larvae are probably referable to the Palaearctic *H. tessellatus* (RAMBUR, 1842).
- Sericostomatidae**
- Gumaga orientalis* (MARTYNOV, 1935). Male and female adults were collected near Inya river, 4-VI-2003. East Palaearctic species; previously known from the Russian Far East. First record for Siberia.
- Sericostoma* sp. Collected larvae are probably referable to the West Palaearctic *S. personatum* (KIRBY & SPENCE, 1826) known from Europe.
- Molannidae**
- Molanna moesta* BANKS, 1906. Numerous adults found on Inya and Berd' rivers (VIII-2003). East Palaearctic species: south Siberia (previously known from Pribaikalie), Yakutia, and the Russian Far East. The westernmost record of this species.
- Leptoceridae**
- Ceraclea alboguttata* (HAGEN, 1860). Numerous males and females, Ob' river, Novosibirsk city, 10-VII-2002. Palaearctic.
- Ceraclea excisa* (MORTON, 1904). Two males and one female, Berd' river, Shipunovo village, 25-VI-2002. Palaearctic.
- Ceraclea lobulata* (MARTYNOV, 1935). Two males were found near Ob' river within the territory of Novosibirsk city (24-VIII-2003). East Palaearctic species: Siberia, China and the Far East. First record for West Siberia.
- Oecetis brachyura* YANG & MORSE, 1997. A male, Shipunikha rivulet (6-VIII-2003). East Palaearctic species; previously known from China and the Russian Far East. First record for Siberia.
- Oecetis intima* MACLACHLAN, 1877. Ten males and sixteen females, Chany lake near Kvashnino village, 29-VII-2003. Palaearctic.
- Mystacides dentatus* MARTYNOV, 1924. Numerous adults, Inya (V-2003) and Berd' (V-VII-2003) rivers. East Palaearctic species: previously known from Altai, south-eastern Siberia and the Far East of Russia. First record from the West Siberian plains.
- Setodes viridis* (FOURCROY, 1785). Two males, Inya river (10-VIII-2003) and Berd' river (6-VIII-2003). As far as we know, this species was not previously recorded for Asia. West Palaearctic species. First record for Asia and for Siberia.
- Triaenodes* sp., larvae: could not be identified to species level.
- Discussion.** To the best of our knowledge, only one paper was focused on the caddisflies of upper part of River Ob' mostly from the Altai Mountains (LEPNEVA, 1930). Only 20 species were reported in this publication (differences for the Novosibirsk area are asterisked): *Rhyacophila sibirica*\*, *Neureclipsis bimaculata*, *Cyrnus flavidus*, *Hydropsyche contubernalis* (as *H. ornatula*), *Hydropsyche bulgaromanorum* (as *H. guttata*), *Hydropsyche nevae*\*, *Potamyia czekanowskii*, *Macrostemum radiatum*, *Aethaloptera evanescens*, *Arctopsyche ladogensis*\*, *Molanna albicans*\*, *Athripodes aiterrimus*\*, *Ceraclea fulva*\*, *Ceraclea nigronevosa*\*, *Mystacides*

*longicornis*\*, *Mystacides* sp., *Oecetis* sp., *Triaenodes* sp., *Limnephilus rhombicus*, and *Brachycentrus subnubilus*. This list shows a mixture of Western and eastern Palearctic species with dominance of eastern hydropsychids and western leptocerids. The recent samples from Novosibirsk area lack the species asterisked above; these species are mostly "western" (except for eastern *Rh. sibirica* and widespread *H. nevae* and *A. ladogensis*) so their presence in the regions situated west to the Altai Mts. is highly possible.

One of the listed findings appears to be the easternmost locality: *Setodes viridis* was previously considered as the West Palearctic species so its Siberian distribution was not expectable. A few species were found in their westernmost localities: *Rhyacophila angulata*, *Ceratopsyche kozhantshikovi*, *Ceratopsyche valvata*, *Psychomyia minima*, *Hydatophylax grammicus*, *Gumaga orientalis*, *Molanna moesta*, *Ceraclea lobulata*, *Oecetis brachyura*, *Mystacides dentatus*. They were previously recorded from different areas ranging from Altai to the Far East.

*Mystacides dentatus* was previously reported only from the mountain lakes in Altai-Sayan Mountain System (LEPNEVA, 1966). Numerous adults collected from May to July at Inya and Berd' rivers were reliably identified as *M. dentatus* confirming the westernmost locality for this species. However, larvae collected at Inya river (August 29, 2003) should be identified as West Palearctic *Mystacides azureus* (LINNAEUS, 1761) according to the available keys (IVANOV et al., 2001; LEPNEVA, 1966). Slight differences in coloration of larvae of these two species used in the keys are not reliable, as mentioned previously (LEPNEVA, 1949) so that these larvae could not be distinguished with the current keys. Obviously, the coloration of larvae in this instance is not reliable so other characters should be found for the species separation in the Siberian *Mystacides*.

The samples treated in this article were rather occasional and cannot cover the entire fauna so that the conclusions here are preliminary. The total number of species (38) is too low to be exhausting for the south-eastern corner of the West Siberian Lowland. Nonetheless it is possible to trace some affinities of the Trichoptera species inhabiting the Novosibirsk area. The fauna of the studied region includes 17 Palearctic, 3 Holarctic, 13 East Palearctic and 5 West Palearctic species. Larvae of *Halesus* sp., *Sericostoma* sp. and *Triaenodes* sp. could not be identified to species level. Two of these species were counted as West Palearctic, and *Triaenodes* can not be attributed zoogeographically. Small number of the West Palearctic species in the list stresses the eastern affinities of the local fauna. The species represented by larvae require subsequent confirmation by collecting adult insects.

The studied region is a borderland for both the East- and West-Palearctic aquatic insect faunas; this feature is shown also by the mayfly fauna of the region (BEKETOV & KLUGE, 2003). The presence of numerous eastern species in this territory is caused by the neighboring Altai-Sayan mountain area that is the part of a great mountain system stretching from Altai in the SW and Putorana Mountains in the NW to the Pacific Ocean in the East. The West Siberian Lowland is a barrier between the European and Siberian aquatic faunas. Its separating features depend on high water temperatures and salinity in the south and low oxygen levels in bogs, lakes and rivers in the north. Further studies are necessary to uncover the detail picture of interrelations in the West and East Palearctic faunas.

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